

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed September 20, 2004. Upon entry of the amendments in this response, claims 25 – 37, 41 – 53 and 57 - 62 remain pending. In particular, Applicant has amended claims 25, 29, 32 – 34, 41, 45 and 48 – 50, has added claims 57 – 62, and has canceled claims 1 – 24, 38 – 40 and 54 – 56 without waiver, disclaimer or prejudice. Applicant has canceled claims 1 – 24, 38 – 40 and 54 – 56 merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicant reserves the right to pursue the subject matter of these canceled claims in a continuing application, if Applicant so chooses, and does not intend to dedicate the canceled subject matter to the public. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Indication of Allowable Subject Matter

The Office Action indicates that claims 29 - 31 and 45 - 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. As set forth above, Applicant has amended independent claims 25 and 41 to recite features that are believed to be the bases for the stated allowability of claims 29 - 31 and 45 - 47. Therefore, Applicant respectfully asserts that claims 25 and 41, as well as their respective dependent claims 26 – 37, 57 – 59 and 42 – 53, 60 – 62, also are in condition for allowance.

Objections to the Drawings

The Office Action indicates that the drawings are objected to under 37 C.F.R. 1.83(a). In this regard, Applicant respectfully submits herewith a sheet of drawings including Figs. 3A and 3B to be entered in the application. Figs. 3A and 3B illustrate embodiments of a heat spreader mounted onto a PCB substrate or stiffener using an adhesive, as previously described in the specification and recited in the original claims. Therefore, Applicant respectfully asserts that no new matter has been added.

Objections to the Specification

The Office Action indicates that the disclosure stands objected to because of various informalities. As set forth above, Applicant has amended the specification and respectfully asserts that the objection has been accommodated.

Objections to the Claims

The Office Action indicates that the claims stand objected to because of various informalities. As set forth above, Applicant has amended the claims and respectfully asserts that the objection has been accommodated.

Rejection under 35 U.S.C. 112

The Office Action indicates that claims 29 and 45 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. As set forth above, Applicant has amended the claims and respectfully asserts that the rejection has been accommodated.

Rejection under 35 U.S.C. 102

The Office Action indicates that claim 25 stands rejected under 35 U.S.C. 102 as being anticipated by *Juskey*. Applicant respectfully traverses the rejection.

In this regard, Applicant has amended claim 25 to recite:

25. A heat spreader ball grid array package, comprising:
a ball grid substrate;
a semiconductor chip affixed to the ball grid substrate;
a mounting compound encasing the semiconductor chip over the ball grid substrate;
a heat spreader mounted over the ball grid substrate and spaced apart from the molding compound to form a gap; and
thermal grease within the gap at least between the heat spreader and the molding compound, ***wherein the thermal grease comprises silicon rubber containing heat-conducting particles.***

(Emphasis Added).

Applicant respectfully asserts that *Juskey* is legally deficient for the purpose of anticipating claim 25. Specifically, Applicant respectfully asserts that *Juskey* does not teach or otherwise disclose at least the features/limitations emphasized above in claim 25. Therefore, Applicant respectfully asserts that the rejection of claim 25 is improper and should be removed.

Rejection under 35 U.S.C. 103

The Office Action indicates that claims 26, 27, 34 and 35 - 37 stand rejected under 35 U.S.C. 103 as being unpatentable over *Juskey* in view of *Long*. The Office Action also indicates that claims 28, 32 and 33 stand rejected under 35 U.S.C. 103 as being unpatentable over *Juskey* in view of *Culnane* and further in view of *Primeaux*; that claim 41 stands rejected under 35 U.S.C. 103 as being unpatentable over *Juskey* in view of *Lee*; and that claims 42, 43, 50 and 51 - 53 stand rejected under 35 U.S.C. 103 as being unpatentable over *Juskey* and *Lee* in view of

Long. Additionally, the Office Action indicates that claims 44, 48 and 49 stand rejected under 35 U.S.C. 103 as being unpatentable over *Juskey* and *Lee* and further in view of *Culnane* and *Primeaux*. Applicant respectfully traverses the rejections.

With respect to claim 25, that claim now recites:

25. A heat spreader ball grid array package, comprising:
a ball grid substrate;
a semiconductor chip affixed to the ball grid substrate;
a mounting compound encasing the semiconductor chip over the ball grid substrate;
a heat spreader mounted over the ball grid substrate and spaced apart from the molding compound to form a gap; and
thermal grease within the gap at least between the heat spreader and the molding compound, wherein the thermal grease comprises silicon rubber containing heat-conducting particles.

(Emphasis Added).

Applicant respectfully asserts that the cited references, either individually or in combination, are legally deficient for the purpose of rendering claim 25 obvious. Specifically, Applicant respectfully asserts that none of *Juskey*, *Lee*, *Culnane* or *Primeaux* teaches or reasonably suggests at least the features/limitations emphasized above in claim 25. Therefore, Applicant respectfully asserts that claim 25 is in condition for allowance. Since claims 26 – 37 and 57 – 59 are dependent claims that depend from claim 25 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to claim 41, that claim recites:

41. A heat spreader ball grid array package, comprising:
a ball grid substrate;
a semiconductor chip affixed to the ball grid substrate;
a molding compound encasing the semiconductor chip over the ball grid substrate;
thermal grease over the molding compound, wherein the thermal grease comprises silicon rubber containing heat-conducting particles;

a heat spreader mounted over the ball grid substrate, the molding compound and the thermal grease; and
a PCB substrate or a stiffener mounted to the heat spreader.

(Emphasis Added).

Applicant respectfully asserts that the cited references, either individually or in combination, are legally deficient for the purpose of rendering claim 41 obvious. Specifically, Applicant respectfully asserts that none of *Juskey*, *Lee*, *Culnane* or *Primeaux* teaches or reasonably suggests at least the features/limitations emphasized above in claim 41. Therefore, Applicant respectfully asserts that claim 41 is in condition for allowance. Since claims 42 – 53 and 60 – 62 are dependent claims that depend from claim 41 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

Newly Added Claims

Upon entry of the amendments in this response, Applicant has added new claims 57 - 62. Applicant respectfully asserts that these claims are in condition for allowance. Specifically, Applicant respectfully asserts that these claims are dependent claims that incorporate the features/limitations of either claim 25 or claim 41, the allowability of each of which is set described above. Therefore, Applicant respectfully asserts that these claims are in condition for allowance.

Cited Art Made of Record

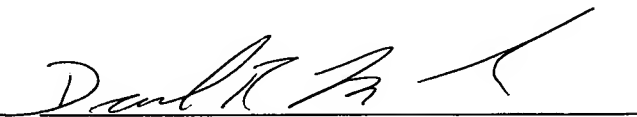
The cited art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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